UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/010,774	11/13/2001	Baoqing Ye	Verizon-18	2755

32127 7590 09/07/2006

VERIZON
PATENT MANAGEMENT GROUP
1515 N. COURTHOUSE ROAD, SUITE 500
ARLINGTON, VA 22201-2909

EXAMINER	
JUNTIMA, NITTAYA	
ART UNIT	**PAPER NUMBER**
2616	

DATE MAILED: 09/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/010,774	YE, BAOQING	
	Examiner	Art Unit	
	Nittaya Juntima	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 June 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) *1,2,7 and 8* is/are withdrawn from consideration.

5)☐ Claim(s) *3,17 and 19-23* is/are allowed.

6)☐ Claim(s) *4-6,9-16 and 18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *13 November 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This action is in response to the amendment filed on 6/19/2006.

2. The objections to the claims are withdrawn in view of applicant's amendment.

3. Claims 1-2, and 7-8 were cancelled.

4. Claims 3, 17, and 19-23 are allowed.

5. Claims 4, 5, 9, 10, 11, 12, 14, and 18 are presently rejected under 35 U.S.C. 102(b).

6. Claims 6, 13, 15, and 16 are presently rejected under 35 U.S.C. 103(a).

Claim Objections

7. Claims 9, 14, 16, 18 and 19 are objected to because of the following informalities:

- In claim 9, line 16, "network" should be removed;
- in claim 14, line 4, "node" should be changed t o device, see claim 10, line 2;
- in claim 16, line 2, "includes" should be changed to "include;"

lines 3 and 5, "device" should be inserted after "destination;"

- in claim 18, lines 15-16, "flow control messages" should be changed to "regulation signals;"
- in claim 19, line 15, "flow control messages" should be changed to "regulation signals."

Appropriate correction is required.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 4, 5, 10, 11, 12, 14, and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Hatono et al. ("Hatono") (USPN 5,914,936).

Regarding claim 4, Hatono teaches teaches a packet flow control method comprising the steps of :

Detecting congestion in a first node (an ATM exchange 6, Fig. 6) along a packet flow path between a source device (a source terminal 201-S, Fig. 6) and a destination device (a destination terminal 201-R, Fig. 6), including the step of monitoring to detect when said first node is saturated with packet traffic for a preselected period of time (the permissible time) (the heavy congestion detector 150, Fig. 9 of the ATM exchange judges that the heavy congestion is occuring when queue length does not return to the second threshold within the permissible time, col. 10, lines 45-62 and col. 12, lines 33-45).

Identifying a node (the ATM-TA 200 in Fig. 8) in said path preceding said first node (since an RM cell is transmitted to the ATM-TA 200 in Fig. 8 for traffic restriction when the heavy congestion is detected, the ATM-TA 200 must be identified, col. 11, lines 13-21 and col. 12, lines 45-53).

Transmitting to said preceding node (the ATM-TA 200 in Fig. 8) a traffic regulation signal (the RM cell with restriction value) used to initiate flow rate control on flows identified from information included in said traffic regulation signal, wherein said information included in

said traffic regulation signal includes a destination address (RM cell 10, Fig. 7 includes a destination address) (col. 11, lines 1-4, 18-21 and col. 12, lines 45-53).

Regarding claim 5, Hatono teaches that said traffic regulation signal (the RM cell with restriction value) includes flow path information (flow path information reads on an origination address and a destination address contain in the RM cell 10, Fig. 7, lines 1-4).

Regarding claim 10, Hatono teaches a method of implementing flow control in a communications network including a first node (the ATM-TA 200 in Fig. 8), a second node (an ATM exchange 6, Fig. 6), and a destination device (a destination terminal 201-R, Fig. 6), the first being located upstream of the second node on a communication path (see Fig. 81) to said destination device, the method comprising the steps of:

Operating the second node (an ATM exchange 6, Fig. 6) to detect when the second node is saturated with traffic for a period of time (the permissible time) (the heavy congestion detector 150, Fig. 9 of the ATM exchange judges that the heavy congestion occurs when the elapsed time from the point of time when the count value exceeds the first threshold and does not return to the second threshold has reached the permissible time, col. 10, lines 45-62, col. 12, lines 33-45).

In response to detecting that said second node (an ATM exchange 6, Fig. 6) is saturated with traffic for said period of time, operating the second node to send a first traffic regulation signal (the RM cell with restriction value) to the first node (the ATM-TA 200 in Fig. 8) to trigger said first node to perform traffic regulation of flow rates on flows of packets directed to said destination device (col. 11, lines 1-4, 18-21 and col. 12, lines 45-53).

Regarding claim 11, since Hatono teaches that the first traffic regulation signal (the RM cell with restriction value) is transmitted from the second node (the ATM exchange) to the first

node (ATM-TA 200) which lies a long the path to a source node (the packet terminal 201, Fig. 8), it is then inherent that the step of initiating a path determination operation to determine at least a portion (source and destination) of a path of a flow causing congestion at said second node (the ATM exchange) must be included in order for the first traffic regulation signal (the RM cell with restriction value) to be transmitted correctly to the first node (ATM-TA 200) coupling to the source node . See col. 11, lines 1-4, 18-21 and col. 12, lines 45-53.

Regarding claim 12, it is inherent that the second node (the ATM exchange) must receive path information identifying said first node (ATM-TA 200, Fig. 8) as part of said path of the flow causing congestion in order for the second node (the ATM exchange) to transmit (the RM cell with restriction value) to the first node (ATM-TA 200) which lies a long a path to a source node (the packet terminal 201, Fig. 8) for traffic restriction to be performed on the source node (col. 11, lines 1-4, 18-21 and col. 12, lines 45-53).

Regarding claim 14, Hatono further teaches operating the first node (ATM-TA 200, Fig. 8), in response to said first traffic regulation message (the RM cell with restriction value sent by the ATM exchange), to perform forced flow rate reduction operations on at least some flows directed to said destination device (col. 11, lines 18-21 and col. 16, lines 19-col. 17, lines 59, 61-65).

Regarding claim 18, Hatono teaches a communication system for communicating information as flows of packets, the system comprising:

A first network node (the ATM exchange, Fig. 8) including:

i. Congestion control means (heavy congestion detector 150, Fig. 9) for detecting congestion at said first network node (col. 12, lines 1-4, 33-45).

ii. Traffic flow path determination means for determining the path at least one packet flow causing congestion at said first network node (determining method is not defined, therefore the traffic flow path determination means reads on the SW110 and an RM transmitter 170 in Fig. 9, collectively, which must determine the path of the flow between the source terminal 201-S and a destination terminal 201-R in Fig. 6, in order to correctly transmit the RM with restriction value to the ATM-TA 200 in Fig. 8 coupling to source terminal that causes the congestion, col. 10, lines 49-52, col. 11, lines 1-4, 41-48, col. 12, lines 46-53).

iii. Early traffic regulation signaling means (an RM transmitter 170, Fig. 9) for transmitting a traffic regulation signal (a RM cell with restriction value) to initiate traffic regulation at an upstream network node (ATM-TA 200 in Fig. 8). See col. 11, lines 18-21 and col. 12, lines 46-53.

An upstream network node (ATM-TA 200 in Fig. 8) being coupled to the first network node (the ATM exchange, Fig. 8), the upstream network node including:

i. Means for receiving traffic regulation signals (an RM cell receiver 240, Fig. 12, col. 15, lines 32-41).

ii. Flow control means (the burst division controller 220 and the packet readout delay circuit 210 in Figs. 14 and 15, collectively) for performing flow rate reduction operations on one or more traffic flows identified from information included in received traffic regulation signals (col. 16, lines 9-col. 17, lines 59, see also col. 11, lines 13-21).

10. Claim 9 is rejected under 35 U.S.C. 102(b) as being anticipated by Van As et al. ("Van As") (US 5,901,140).

Regarding claim 9, as shown in Figs. 1 and 2, Van As teaches a packet flow control method comprising the steps of:

Detecting congestion in a first node (switch 3) along a packet flow path between a source device (an inherent source device must be included to send traffic into the ATM network shown in Figs. 1 and 2) and a destination device (a destination device must be included to received the traffic from the ATM network) (col. 3, lines 47-49, 52-54, col. 4, lines 26-28).

Operating the first node to perform a forced reduction (hold back all cells flowing via the bottleneck link 5) in the flow rate of at least one packet flow in response to detecting traffic congestion as a function of a base line flow rate for traffic flowing through the first node (col. 3, lines 47-49, 54-60, col. 4, lines 29-39).

Identifying a node (upstream switch 2) in said path preceding said first node (upstream switch 2 with cells flowing to the bottleneck link 5 must be identified, col. 3, lines 56-col. 4, lines 2, 39-47, 53-59).

Transmitting to said preceding node a traffic regulation signal used to initiate flow rate control on flows identified from information included in said traffic regulation signal (col. 3, lines 60-col. 4, lines 2, 39-47, 53-59).

Operating said preceding node to perform a forced reduction (hold back all cells flowing via the bottleneck link 5) in the flow rate of at least one packet flow in response to detecting traffic congestion as a function of a base line flow rate for traffic flowing through the preceding node (col. 3, lines 47-49, 66-col. 4, lines 2, 45-53).

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hatono et al. ("Hatono") (USPN 5,914,936) in view of Lauffenburger et al. ("Lauffenburger") (USPN 6,657,961 B1).

Regarding claim 13, it is inherent that in the teaching of Hatono the second node (the ATM exchange) must detect when the second node ceases to be saturated with traffic after being saturated for said period of time (the permissible time) since the heavy congestion detector 150 has to check when the count value is inputted whether the inputted count value exceed the first threshold (col. 12, lines 25-45).

However, Hatono fails to explicitly teach that in response to the second node detecting that the second node has ceased to be saturated with traffic, sending a second traffic regulation message to said first node to cause said first node to cease traffic regulation of flow rates on flows of packets directed to said destination device.

Lauffenburger teaches in response to a second node (a receiving end station) detecting that the second node has ceased to be saturated with traffic (congestion subsides), sending a second traffic regulation message (solicited RM cell 26 with desired ER value, signaling XON – inherently indicating a stop a previously indicated flow rate) to said first node to cause said first node to cease traffic regulation of flow rates on flows of packets directed to said destination device. See col. 6, lines 7-25, see also col. 2, lines 41-44.

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify the teaching of Hatono to include in response to the second node detecting that the second node has ceased to be saturated with traffic, sending a second traffic regulation message to said first node to cause said first node to cease traffic regulation of flow rates on flows of packets directed to said destination device as recited in the claim. The motivation/suggestion to do so would have been to enable the transmitting end station to restart data flow at a flow rate defined in the returned RM packet as taught by Lauffenburger (col. 6, lines 26-30).

13. Claims 6 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hatono et al. ("Hatono") (USPN 5,914,936) in view of Ogawa et al. ("Ogawa") (USPN 6,208,653 B1).

Regarding claims 6 and 15, although Hatono teaches the preceding/first node (ATM-TA 200, Fig. 8), an additional preceding node/a node located upstream to the first node (packet terminal 201, Fig. 8), Hatono fails to explicitly teach operating the preceding/first node to transmit an additional/a third traffic regulation signal to an additional preceding node/the node located upstream of said first node to cause the additional preceding node/the upstream node to initiate flow rate control on flows directed to a destination address identified in said addition traffic regulation signal.

However, Ogawa teaches operating a preceding node/first node (2 in Fig. 1) to transmit an additional/third traffic regulation signal (ACK packet) to an additional preceding node/an upstream node (1 in Fig. 1) to cause the additional preceding node/upstream node to initiate flow rate control on flows directed to a destination address identified in said additional/third traffic

regulation signal (the ACK generated by gateway 2 indicates that the receiving terminal 5 in Fig. 1 cannot receive the data, col. 3, lines 4-14 and col. 6, lines 49-56).

Given the teaching of Ogawa, it would have been obvious to one skilled in the art at the time the invention was made to modify the teaching of Hatono to include operating the preceding node/first node to transmit an additional/a third traffic regulation signal to an additional preceding node/upstream node to cause the additional preceding node/upstream node to initiate flow rate control on flows directed to a destination address identified in said additional/third traffic regulation signal as recited in the claims. The suggestion/motivation to do so would have been to increase a network throughput by stopping the transmission of a TCP datagram from the transmitting terminal itself as taught by Ogawa (col. 8, lines 3-13).

14. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hatono et al. ("Hatono") (USPN 5,914,936) in view of Nishihara (USPN 6,424,620 B1).

Regarding claim 16, although Hatono teaches forced flow rate reduction operations (restricting the flow-in traffic by performing the feedback control on the source terminal when the congestion occurs, col. 17, lines 62-65), Hatono fails to teach that the forced flow rate reduction operations include comparing packet flow rates of packet flows directed to said destination device to at least one flow rate baseline for said first node, and dropping packets from packet flows directed to said destination device which have flow rates exceeding the flow rate base line to which the particular flow rate is compared.

However, Nishihara teaches comparing packet flow rates of packet flows directed to a destination device (22 in Fig. 1) to at least one flow rate baseline (the permissible flowing speed)

for a first node (23 in Fig. 1) (col. 10, lines 44-57), and dropping packets from packet flows directed to the destination device which have flow rates exceeding the flow rate base line to which the particular flow rate is compared (the traffic beyond the permissible flowing speed will be abandoned, col. 10, lines 51-59).

Given the teaching of Nishihara, it would have been obvious to one skilled in the art at the time of the invention to modify the teaching of Hatono such that the forced flow rate reduction operations would include comparing packet flow rates of packet flows directed to said destination device to at least one flow rate baseline for said first node, and dropping packets from packet flows directed to said destination device which have flow rates exceeding the flow rate base line to which the particular flow rate is compared. The suggestion/motivation to do so would have been to regulate the traffic flowing in the ATM network so as not to exceed the permissible flowing speed as specified in the BRM packet (equivalent to the first traffic regulation message) as taught by Nishihara (col. 10, lines 51-59).

Allowable Subject Matter

15. Claim 3 is allowed. The prior art alone or in combination fail to teach or make obvious on the following when considered in combination with other limitations in the claim: identifying a node in the path preceding the first node to receive the traffic regulation signal, wherein the step of identifying includes transmitting a signal to the destination device requesting path information.

Conclusion

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nittaya Juntima whose telephone number is 571-272-3120. The examiner can normally be reached on Monday through Friday, 8:00 A.M - 5:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on 571-272-3155. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Nittaya Juntima
Auguest 31, 2006
NJ

HUY D. VU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600